


**VAGUS NERVE REGULATION,  
EMBODIED YOGA, AND  
TRAUMA RECOVERY**

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April 2020

**IN PRACTICE: 5 POINT CHECK-IN**



**5 Point Check-in**


**Mind:** thoughts and mental focus or clarity  
**Body:** notice sensations  
**Breath:** holding or restriction  
**Emotions:** feelings and associations  
**Energy:** fatigued or energized

**YOGA IN TRAUMA TREATMET**

It is considered a new norm that clients will seek out these complementary approaches to traditional psychotherapy for the treatment of mental illness, chronic pain, and physical illness conditions (Berna, 2019).



**EFFICACY OF MIND-BODY THERAPIES**




Mind-Body Therapies are associated with:

- Improvements in physical and mental health
- Reduced opiate and psychotropic use
- Enhanced emotional well-being
- Better social relationships

(Bolton et al., 2018)

**MINDFULNESS AND YOGA**




Mindfulness and trauma sensitive yoga:

- Reduce autonomic sympathetic activation
- Reduce blood pressure
- Improve neuro-endocrine activity
- Improve vagal tone—Increase heart rate variability (HRV)
- Decrease reported symptoms of PTSD

(Emerson & West, 2015, Rhodes et al., 2016; Tyagi & Cohen, 2016; van der Kolk et al., 2014)

**SHAVASANA, YOGA NIDRA AND RESTORATIVE PRACTICES**



- Improved Cardiovascular Health-- Reduced blood pressure, reduced hypertension.
- Improved Endocrine System Health— Improved thyroid health, blood sugar management
- Digestive System Health
- Reduced Inflammation and improvements in rheumatoid arthritis

(Ross & Thomas, 2010, Trakroo, & Bhavanani, 2016)

### THE VAGUS NERVE

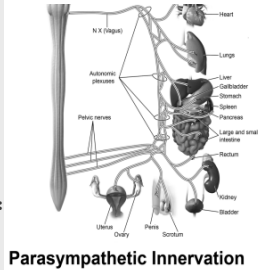
Cranial Nerves X (V, VII, VIII, XI)

**Bi-Directional Information highway:** Communicates interoceptive information to prefrontal cortex about changes in ANS arousal

**Ventral Vagal—Above Diaphragm:** Connects heart, lungs, throat, inner ear, and facial muscles. (Orient to Safety)

**Dorsal Vagal—Below Diaphragm:** Connects to the organs (stomach, intestines, etc.) (Restoration and Relaxation)

**Inhibitory Influence:** Reduces sympathetic NS activation



### LISTENING AND THE VAGUS NERVE (ROSENBERG, 2017)

- Vagus nerve tightens and relaxes the inner ear (CN V)
- Tightening the stapedius muscle in the inner ear, reduces sensitivity to high and low vibration sounds.
  - Allows a baby to hear a mother’s voice and helps increase anyone’s sensitivity to the human voice.
- Tensing the tensor tympani which regulates middle ear bones, diminishes low-frequency background sounds.
- Hyperacusis, hypersensitivity to high and low-frequency sounds.
  - Common in autism and sensory integration disorder.
- Evolutionary purpose: animals in the wild communicate danger using high and low vibrational sounds.

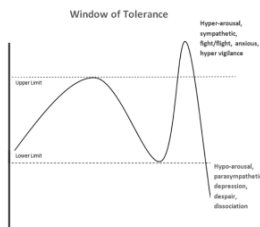
### EMPATHY AND THE VAGUS NERVE (ROSENBERG, 2017)

- Vagus nerve connects to the skin of the face and the muscles of the face (CN V, VII)
  - When we change facial expressions it gives us the “feeling of the face”
  - These changes in facial expression help us understand the meaning and feeling of communications.
- Vagus nerve connects to our ability to hear and speak in a sensitive manner.
  - Allows us to listen to what is being said and look at another to exchange meaningful visual cues.
- Dysfunction in vagus nerve leads to excessive or unreasonable distrust, difficulty in conflict resolution, anger, aggression, or withdrawal.

### CERVICAL VERTEBRAE AND THE VAGUS NERVE (ROSENBERG, 2017)

- Alignment of C1 and C2 is connected to the health of the autonomic nervous system.
- When we are in a sympathetic or defensive dorsal vagal state C1 and C2 rotate out of position which:
  - Reduces blood flow to the vertebral artery which supplies blood to the brainstem and the Vagus Nerve (CN V, VII, IX, X, XI)
  - Reduces social engagement in preparation for defensive action
  - These changes happen immediately, without conscious thought (as a result of any perceived or actual threat)

### TRAUMA AND THE AUTONOMIC NERVOUS SYSTEM



- **Hyperarousal** (Stuck in Sympathetic NS): Fight, Flight
  - **Hypoarousal** (Stuck in Dorsal Vagal NS): “Faint” Immobilization, Apathy, Hopelessness
- Alternation between High and Low Arousal**

#### Hyper-arousal Symptoms (Excessive Sympathetic Response):


- Irritability
- Anxiety
- Restlessness
- Aggression or Rage
- Crying uncontrollably
- Hypervigilance
- Feeling “overwhelmed”

#### Hypo-arousal symptoms (Excessive Parasympathetic Response):

- Fatigue
- Lethargy
- Helplessness
- Emotional dullness
- Numbing
- Feeling “depressed”
- Dissociation

### SIGNS OF A REGULATED NERVOUS SYSTEM

- Feeling calm and alert
- Expresses a range of emotions without feeling “stuck” in feelings or in numbness
- Ability to think clearly and logically
- Ability to reflect upon choices and make healthy decisions
- Feeling “grounded”
- Aware of body and breath
- Healthy sleep cycle
- Able to communicate to others clearly



### THE SOCIAL NERVOUS SYSTEM



- Ventral Vagal Nerve Pathway—Most Recently Evolved Portion of Vagus Nerve
- We recognize it by the sparkle in the eye, prosody of voice tone, natural smile, feeling calm and connected.
- Functions as a fine-tuned, refined brake
- Is strengthened by repeated practice which myelinates the nerve pathways and leads to increased speed and control.


### POLYVAGAL THEORY (PORGES, 2011)

Tiered Response to Threat

Social Nervous System: “Whatever it takes” communications to establish safety & connection.

Sympathetic N. S.: Mobilization into Fight and Flight. Scared, Angry.

Parasympathetic N.S.: Immobilize, “faint,” dissociation, depressed, hopeless, helpless, numb.




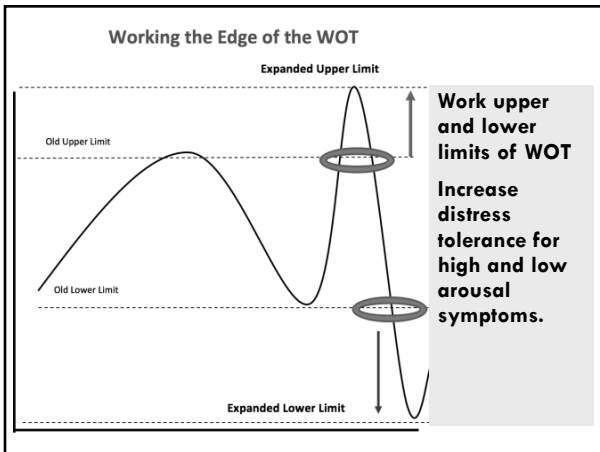
### SOCIAL NERVOUS SYSTEM “HYBRID” STATES

In Times of Safety

Social Nervous System: Secure, Connected, Creative, Clear, Competent, Hopeful, Understood, & Relaxed

Ventral Vagal Circuit with Sympathetic N.S.: Mobilization for play, sexual arousal, curiosity, joy, and excitement.

Ventral Vagal Circuit with Dorsal Vagal Circuit: Rest, Digest, Relaxation, Sleep, Renewal, Intimacy, Spirituality

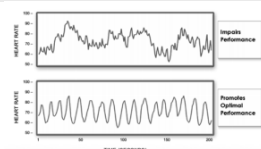
### HEART RATE VARIABILITY (ROSENBERG, 2017)

The social nervous system has a regulating, calming, and soothing effect reflected in rhythmic oscillations in heart rate variability.

“Heart rate variability (HRV) provides the best available means of measuring the interaction of sympathetic and parasympathetic tone, that is, of brainstem regulatory integrity.” (van der Kolk, 2006)

Low HRV is associated with anxiety and depression

High HRV is associated with positive emotions and resistance to stress.



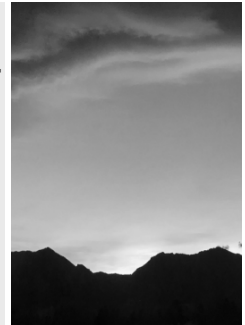
### THE VAGUS NERVE AND HEALING PTSD

- There is no fixed state of balance. Ongoing rebalancing. We repeat vagus nerve exercises as often as needed.
- In order for vagus nerve exercises to work we must “Be safe and feel safe.”
- These “imbalances” in the vagus nerve will likely return unless underlying issues are attended to and resolved:
  - Unresolved trauma
  - Grief
  - Attachment wounds



### BREATHING FOR VAGUS NERVE REGULATION

- **Breath:** the fastest way to regulate ANS (Porges)
- Slow down the breath from 10-14 breaths per minute to 5-7 breaths per minute.
- **Parasympathetic Breathing:** Emphasize the Exhale. 4-6 or 4-8
- **Sympathetic Breathing:** Kapalabhati Pranayam, Breath of Fire
- **Advanced:** Add Retentions



### EYE MOVEMENTS AND THE “BASIC EXERCISE”



- Alignment of C1 and C2 is connected to the health of the autonomic nervous system.
- Eye movements have a direct connection to the suboccipital muscles and create subtle movements in upper cervical vertebrae (C1, C2).
- We can use eye movements to reset C1 and C2.
- Aligned C1 and C2 increases blood flow to the vertebral artery and the Vagus Nerve
- Basic Exercise (Rosenberg, 2017): Resets Ventral Vagus
  - Resting position, Hands Behind Head
  - Eyes to right until release, eyes to left until release.

### “NATURAL VAGUS NERVE STIMULATION”

- **Humming and singing:** Vagus nerve passes by vocal chords and inner ear. Produces calming effect.
- **Bhamari Pranayama (Honey Bee Breath)**
  - Sit in a comfortable position
  - Close the ears with the palms (thumbs down)
  - Exhale with a humming sound on the exhale to vibrate the eardrum
  - Repeat as long as desired
- **Haakara Pranayama (Haa Sound Breath)**
  - Sit in a comfortable position
  - Take a deep slow breath through the nose
  - Exhale through the mouth with a “Haa” sound
  - Notice the sensations in the roof of the mouth

### 8 PRINCIPLES OF YOGA FOR TRAUMA RECOVERY

1. Safety
2. Choice and Control
3. Intention for Practice
4. Community
5. Nervous System Flexibility
6. Cultivate Equanimity
7. Awaken Instinct and Intuition
8. Transformation and Awakening



#### 1. Safety:

- Emphasize inner experience vs. outer shape
- No mirrors
- A language of invitations vs. directives

#### 2. Choice and Control

- A practice in making choices
- Do I want my eyes open or closed
- Do I want to move or be still
- In what ways do I want to move my body
- How would I like to breathe right now?
- Saying “no” is an important part of saying “yes”
- Choice is empowerment
- Explore body, breath, and movement

**3. Nervous System Flexibility**

- Increase tolerance of sympathetic and parasympathetic actions.
- Balance of Effort and Ease (Will and Surrender)
- Up-regulation and down-regulation tools
- Window of tolerance/Expansion and Contraction
- Breathwork
- Connect to your senses
- Dual Awareness Strategies
- Grounding

**4. Mindset and Mindsight**

- Build capacity to reflect upon emotions, sensations, and state of mind (Witness)
- Observe negative beliefs and identify new positive beliefs
- Set an intention as a focus for practice
- Intention may change or evolve across the practice

**5. Community**

- Trauma needs to be healed interpersonally
- Repair wounds of feeling excluded, exiled, or not belonging
- Speaking Intentions in a group—meaning making is a personal and an interpersonal experience.



**6. Cultivate Equanimity**

- Tools to Embrace Change “Surf the waves”
- “Patience through seeing the bigger picture”
- The ability to “stand in the middle of all this”

**7. Transformation and Awakening**

- Yoga at the “Edge”
- Practice in the transitional space between the person you are and the person you are becoming
- Cultivating resilience: physical, mental, emotional, social, and spiritual

**8. The Somatic Experience: Instinct and Intuitive Movement**

- Posture is a secure base for exploration
- Sensations are the guide
- Sequencing frozen or truncated movements
- “Shake it out”



**IN PRACTICE: PANDICULAR MOVEMENT**

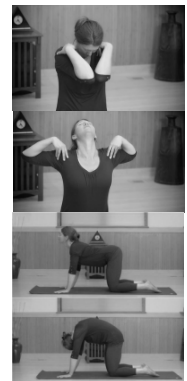


- Pandiculation involves an alternation of stretches and contractions...that feels natural (and good).
- Pandicular movements are deeply healing as they are the nervous system’s way of waking up the sensory-motor system (Hanna, 2004).
- Imagine moving like an animal just waking up from a nap by creating a full-body yawn.
- These healing movements reduce the buildup of chronic muscular tension and increase voluntary control over one’s muscles.

**VAGUS NERVE YOGA FOR BALANCE**

Yoga for Vagus Nerve: Gently stimulate vagus nerve with posture that open the spine, throat, heart, diaphragm and digestive organs.

- Spinal Rotations and Undulations
- Robin’s Breath and Lion’s Breath
- Spinal Twists
- Cat-Cow and variations
- Core Strengthening
- Vigorous and Strength Building (Warrior)
- Hips and Psoas Release (lizard, runner’s lunge)
- Digestive Support (Wind-Relieving)
- Restorative (Legs up the wall, Shavasana)

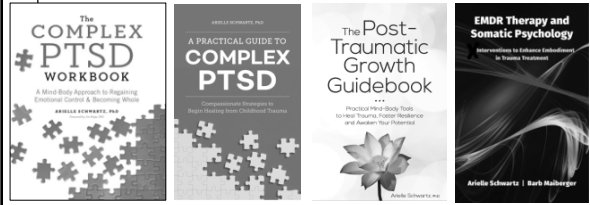


**Roll the Joints**

- The ankles (one at a time)
- The knees
- The hips
- Roll out the spine (undulations)
- Shoulders
- Elbows
- Wrists
- Head
- Put it all together to find ease and fluidity throughout your entire body.



**Additional Resources:**



[www.drarielleschwartz.com](http://www.drarielleschwartz.com)